

REQUEST FOR CATEGORICAL EXCLUSION AMENDMENT 3

PROGRAM/ACTIVITY DATA:

Cooperative Agreement: Cooperative Agreement # AID-OAA-A-11-00045

Countries: Bhutan, India, Nepal, Pakistan, Afghanistan, Tajikistan, Kyrgyz Republic, Kazakhstan

Program: Establishing a Collaborative Effort to Assess the Role of Glaciers and Seasonal Snow Cover in the Hydrology of the Mountains of High Asia

Time Period: October 2011- April 2019

LOP Amounts: \$8,500,000

IEE prepared by: Mary Melnyk, Asia/TS
Agreement Officer's Representative

Mary Melnyk Date 6/27/2018

Date: June 27, 2018

IEE Amendment (Y/N): Y Washington 11-138, Washington 12-169, Asia 15-111

ENVIRONMENTAL ACTION RECOMMENDED: (Place X where applicable)

Categorical Exclusion: X Negative Determination: _____
Positive Determination: _____ Deferral: _____

ADDITIONAL ELEMENTS: (Place X where applicable)
CONDITIONS _____ PVO/NGO: _____

SUMMARY OF FINDINGS & RECOMMENDED THRESHOLD DECISION

Pursuant to 22 CFR 216.2(a), environmental analysis/evaluation is required for new projects, programs or activities authorized by USAID. An original Request for Categorical Exclusion (RCE) was approved on August 21, 2011 [Washington 11-138] for activities planned under "Establishing a Collaborative Effort to Assess the Role of Glaciers and Seasonal Snow Cover in the Hydrology of the Mountains of High Asia". An Amended RCE [Washington 12-169] was approved on August 28, 2012 for Modification #1 to the Cooperative Agreement that increased the life of project (LOP) funding amount and extended the period of funding by one year. A second Amendment to the RCE [Asia 15-111] was approved for Modification #2 to the Cooperative Agreement that increased the overall life of project (LOP) funding amount from \$7,500,000 to \$8,500,000 and extended the period to September 30, 2017.

The purpose of this third Amendment to the RCE reflects Modifications #3 and #4 to the Cooperative Agreement for no cost-extensions initially until September 30, 2018 and now further extended to March 31, 2019. No additional funds are being added. There are no changes to the program's activities previously contained in the original RCE.

A **Categorical Exclusion** pursuant to 22 CFR 216.2(c)(2), is recommended for:

1. all education, technical assistance, and training programs except to the extent such programs include activities directly affecting the environment 22 CFR 216.2(c)(2)(i),
2. all controlled experimentation exclusively for the purpose of research and field evaluation which are confined to small areas and carefully monitored (22 CFR 216.2(c)(2)(ii));
3. analyses, studies, academic or research workshops and meetings (22 CFR 216.2(c)(2)(iii));
4. Projects in which USAID is a minor donor to a multi-donor project and there is no potential significant effects upon the environment of the United States, areas outside any nation's jurisdiction or endangered or threatened species or their critical habitat (22 CFR 216.2(c)(2)(iv));
5. Document and information transfers (22 CFR 216.2(c)(2)(v));
6. Studies, projects or programs intended to develop the capability of recipient countries to engage in development planning, except to the extent designed to result in activities directly affecting the environment (such as construction of facilities, etc) (22 CFR 216.2(c)(2)(xiv));
7. Activities which involve the application of design criteria or standards developed and approved by USAID (22 CFR 216.2(c)(2)(xv)).

BACKGROUND

1. Introduction

This activity lays out a path towards creating a synergy among research groups currently working on water resources originating in the Himalaya and the mountain ranges of Central Asia (called "High Asia"), and the identification of important new areas of research not currently being undertaken by the institutions in those regions. Since over a third of the world's human population depends on fresh water availability within this hydrologic system, planning for future changes in the systems is a high priority. However, more realistic, accurate and comprehensive assessments of the future availability and vulnerability of the water resources in these regions are not possible until the existing hydrologic regime of these mountains is better defined, the current relationship between glaciers and streamflow is evaluated in quantitative terms, and the contribution from other sources of streamflow is examined. To date, this comprehensive goal has not been not been addressed in a coordinated manner, much less accomplished.

Defining the roles of glaciers and snow in High Asia could be achieved through better coordination of the work currently in progress across the various nations and regions to provide a

focus for answering the critical science questions to better understand regional water resources, how to use them efficiently and how to plan for the implications of future development. First, specific science and planning questions would be identified through the consensus of current experts. Then a plan for standardized research methodology across the region would be formulated to allow systematic and scientific comparison of results. Very limited coordination currently exists in this region and considerable progress could be made through region-wide cooperative and focused planning.

2. Goal and Objectives

The goal of this research is to employ remote sensing data and tools along with modeling to estimate snowmelt and glacial runoff on a regional scale in data-sparse mountain watersheds and to establish bounds on the precipitation and storage components. Methods will combine remote sensing data with ground measurements to derive estimates of above-ground water sources (rain, snowmelt and glacier melt). Existing snow and glacier melt models will be adapted to develop methods appropriate for data-scarce mountainous area and identify primary data limitations. A series of distributed process models will be used to assess the general hydro-meteorological environment of the mountain catchment basins. In addition, the accuracy of the modeling results will be evaluated using innovative isotopic and geochemical tracers to identify and quantify the sources of water to selected major rivers representing the major hydro-climates of the study area. Results of this study can be applied to future efforts to assess the social-economic impacts of water uses and their vulnerability to changes in flow magnitude and timing.

Specifically, project objectives will be accomplished through the application of a suite of satellite remote sensing and ground based data as input to specific snow and ice melt models. A series of distributed process models, in conjunction with area-altitude relationships for snow, ice and temperature data will be used to assess the general hydro-meteorological environment of the mountain catchment basins. In parallel, a synergy among key research groups currently operating in the region of High Asia will be established in order to develop a consensus regarding the identification of specific study regions and data sets to be used in the analysis. We will provide our international research partners with the same input data sets used in the analysis undertaken at University of Colorado at Boulder National Snow and Ice Data Center and the partners will use these consistent, systematically derived data as input to their respective snow and ice melt models. Ultimately, there will be a community assessment of the performance of the various melt models. The specific objectives to meet this goal are:

Objective 1: Assess the total current glacier cover at regional scales using systematic, consistent, semi-automated satellite remote sensing methods;

Objective 2: Assess seasonal changes in snow-covered areas over the same regions using a methodology similar to that of Objective 1;

Objective 3: Determine the contribution of the various hydrologic components (seasonal snow melt, glacier ice melt, rainfall) to streamflow at selected basins using degree-day and ablation gradient snow and ice melt models;

Objective 4: Validate estimates of these hydrologic components for selected river basins using isotopic and geochemical tracers in hydrologic mixing models, and estimate the contribution of groundwater to these rivers using the same mixing models.

APPROVAL OF ENVIRONMENTAL ACTION RECOMMENDED:

By signing below, you approve the Amended IEE for "Establishing a Collaborative Effort to Assess the Role of Glaciers and Seasonal Snow Cover in the Hydrology of the Mountains of High Asia".

CLEARANCES:

DIRECTOR OF THE OFFICE OF TECHNICAL SUPPORT

Asia/TS Director: _____

Michael Ronning

Date June 29, 2018

DECISION OF THE ASIA BUREAU ENVIRONMENTAL OFFICER:

Asia BEO: _____

Will Gibson

Date

June 30, 2018

Approved: ☒

Disapproved: ☐

Drafted: Mary Melnyk, Asia/TS